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PRELIMINARY ASSESSMENT/ VISUAL SITE INSPECTION

BIRMINGHAM STEEL CORPORATION
ILLINOIS STEEL DIVISION
BOURBONNAIS, ILLINOIS
ILD 980 996 862

FINAL REPORT

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
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EXECUTIVE SUMMARY

Resource Applications, Inc. (RAI) performed a preliminary assessment and visual site inspection (PA/VSI) to identify and assess the existence and likelihood of releases from solid waste management units (SWMU) and other areas of concern (AOC) at the Birmingham Steel Corporation, Illinois Steel Division (Birmingham Steel) facility in Bourbonnais, Illinois. This summary highlights the results of the PA/VSI and the potential for releases of hazardous wastes or hazardous constituents from SWMUs and AOCs identified. In addition, a completed U.S. Environmental Protection Agency (EPA) Preliminary Assessment Form (EPA Form 2070-12) is included in Attachment A to assist in prioritizing RCRA facilities for corrective action.

The Birmingham Steel facility manufactures steel products by melting scrap steel. Scrap steel is melted in an electric Arc Furnace (SWMU 7), molded in a casting department, and formed in a rolling mill. The formed steel is then packed for shipping. Arc furnace dust (K061) and waste petroleum naphtha (D001, D018, D039) are the only hazardous wastes generated on a routine basis at the facility. The following nonhazardous wastes are also generated at the facility: used oil, contact cooling water, scale sludge, and oil and solids waste. The following wastes have been generated on a one-time only basis: ignitable wastes (D001), corrosive wastes (D002), chromium and lead wastes (D007, D008), contaminated soil (nonhazardous), and polychlorinated biphenyls (PCB).

The facility began operations in 1977, when Alabama Birmingham Bolt Company (ABBC) acquired the land through Federal Bankruptcy Court. In 1984, ABBC changed its name to Birmingham Bolt Company, Inc. (BBC) and in 1991, BBC merged into Birmingham Steel Corporation, Illinois Steel Division. According to facility representatives, the facility was constructed in 1962 and had several unknown owners until 1977. Prior to 1962, the area was agricultural land. Birmingham Steel employs 285 people, with 270 working in production, 7 days per week.

The facility submitted a RCRA Part A permit application to EPA on September 6, 1984, listing a 2,500-cubic-yard waste pile (S03). The S03 process code referred to the Former Storage Cells (SWMU 2), which began operations in 1979. Therefore, the facility was operating without interim status between 1980 and 1984. On December 17, 1984, BBC submitted a closure plan for SWMU 2. A November 7, 1985, Illinois Environmental Protection Agency (IEPA) inspection

concluded that closure of SWMU 2 met the requirements set forth in the closure plan. Birmingham Steel is currently regulated as a large-quantity generator.

The PA/VSI identified the following seven SWMUs at the facility:

Solid Waste Management Units

1. Baghouse Collection System
2. Former Storage Cells
3. Used Oil Tanks
4. Cooling Ponds
5. Boneyard Storage Area
6. Oil and Solids Separator
7. Arc Furnace

No areas of concern were identified during the PA/VSI.

A release to on-site soils occurred each time arc furnace dust (K061) were discharged into the Former Storage Cells (SWMU 2). A release to on-site soils occurs each time nonhazardous contact cooling water and nonhazardous oil and solids waste are put in the unlined Cooling Ponds (SWMU 4). But because nonhazardous scale sludge generated from SWMU 4 is cleaned out on an annual basis, potential for release is low.

On September 25, 1990, a transformer exploded at the Birmingham Steel facility. According to an IEPA document, the explosion and resulting fire caused a release of transformer oil. The document states the oil was flushed into the storm drains when the fire was extinguished by the Bourbonnais Fire Department. The storm drains lead to the Oil and Solids Separator (SWMU 6), which discharges to an unnamed ditch through a National Pollutant Discharge Elimination System (NPDES)-permitted outfall. The unusually large amount of water caused the oil to flow through SWMU 6 without adequate separation, resulting in a release to surface water and on-site soils. However, according to facility representatives, transformer oil was not released, and the material that entered the ditch was only charred debris from the building that housed the transformer. Approximately 20 cubic yards of nonhazardous contaminated soil were removed from the ditch by facility employees and transported to the Arc Furnace (SWMU 7) for incineration. The Arc Furnace was not intended to manage waste; however, the incineration of contaminated soil resulted in its

designation as a SWMU. Soil analysis provided by the facility taken in the ditch after contaminated soil was removed showed grease and oil concentrations at 3 milligrams per liter (mg/L). There are no documents in IEPA files indicating that no further action is necessary.

Birmingham Steel has two NPDES-permitted outfalls (001 and 002). One excursion at outfall 002 was detected in 1982 and one excursion at outfall 001 was detected in 1985. Both excursions resulted in a release to surface water. Outfall 002 is the emergency discharge from the Cooling Ponds (SWMU 4) and oil was detected in the effluent, due to faulty separation at SWMU 6. The facility added a third stage to SWMU 4 and a submerged discharger, to prevent future discharges. Surface water runoff from the facility discharges through outfall 001. A grab sample collected in 1985 showed levels of total suspended solids (TSS) above permitted limits. The cause for the excursion was buildup of grit and debris inside the unit. The facility cleaned the unit and no excursions have been reported since 1985.

Because ground water can be reached at a depth of 3 to 5 feet below the surface, past potential for release to this medium from the Former Storage Cells (SWMU 2) was high. However, ground water wells in the area are drilled to a depth of 175 feet, so potential for contaminants to enter useable ground water was low. Past potential for release to surface water or air was low from SWMU 2. Wastes were not volatile and were managed in the ground, in silty clay soil, keeping release potential low. Because the unit no longer operates and has undergone RCRA closure, current potential for release to ground water, surface water, air, or on-site soils is low. Past potential for release to ground water, surface water, air, or on-site soils from the Boneyard Storage Area (SWMU 5) is unknown because the integrity of the drums managing the wastes is unknown. The unit no longer manages wastes, therefore current potential is low.

Current potential for release to ground water, surface water, air, or on-site soils is low from the Baghouse Collection System (SWMU 1), the Used Oil Tanks (SWMU 3), and the Arc Furnace (SWMU 7). SWMUs 1 and 3 manage waste inside steel containers, while SWMU 7 is used to melt scrap steel and no longer operates as a SWMU.

Potential for release to air is low from the Cooling Ponds (SWMU 4) and the Oil and Solids Separator (SWMU 6). The nonhazardous wastes that both SWMUs manage are not volatile.

Potential for release to ground water is high from SWMU 4 and low from SWMU 6. In the case of SWMU 4, ground water can be reached at a depth of 3 to 5 feet below the surface. However, ground water wells in the area are drilled to a depth of 175 feet, and SWMU 4 manages nonhazardous waste, so potential for contaminants to enter useable ground water is low. In the case of SWMU 6, wastes are managed in a concrete unit. There have been releases to on-site soil and surface water from these units. The release from SWMU 4 was resolved, but the release from SWMU 6 has yet to be adequately addressed.

The facility is located at 972 East 4500 North Road in an industrial and agricultural area of Bourbonnais, Kankakee County, Illinois. The 440,200-square-foot facility is located on a 102-acre parcel of land that is bordered on the north and west by agricultural land; on the east by the Illinois Central Railroad and a lumber company; and on the south by a salvage yard. The nearest residence is approximately 1,000 feet southeast of the facility. The nearest school, Bradley-Bourbonnais High School is located 2 miles southwest of the facility. Birmingham Steel has 24-hour security guards, a fenced perimeter, and video monitoring.

The Village of Bourbonnais receives water from the Kankakee Metropolitan Water Reclamation District, which draws water from the Kankakee River. The intake is located approximately 5.25 miles south of the facility. There are no ground water wells or sensitive environments within 2 miles of the facility. The nearest surface water is an unnamed ditch that flows along the eastern boundary of the facility. The ditch discharges into Soldier Creek, approximately 2.25 miles southeast of the facility.

The Boneyard Storage Area (SWMU 5) managed wastes for greater than 90 days and has not been RCRA-closed; therefore, RAI recommends that the unit undergo RCRA closure. Because the integrity of the drums is unknown, RAI also recommends conducting soil analysis as part of closure. If contamination is detected, the area should be remediated. The soil located at outfall 001 from the Oil and Solids Separator (SWMU 6) should be analyzed for the presence of oils. If contamination is detected, then the area should be remediated. If no contamination is detected, the RAI recommends no further action for this unit. RAI recommends no further action for any of the other SWMUs at the Birmingham Steel facility.

1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC), received Work Assignment No. C05087 from the U.S. Environmental Protection Agency (EPA) under Contract No. 68-W9-0006 (TES 9) to conduct preliminary assessments (PA) and visual site inspections (VSI) of hazardous waste treatment and storage facilities in Region 5. Resource Applications, Inc. (RAI), TES 9 team member, provided the necessary assistance to complete the PA/VSI activities for the Birmingham Steel Corporation, Illinois Steel Division (Birmingham Steel) facility.

As part of the EPA Region 5 Environmental Priorities Initiative, the RCRA and CERCLA programs are working together to identify and address RCRA facilities that have a high priority for corrective action using applicable RCRA and CERCLA authorities. The PA/VSI is the first step in the process of prioritizing facilities for corrective action. Through the PA/VSI process, enough information is obtained to characterize a facility's actual or potential releases to the environment from solid waste management units (SWMU) and areas of concern (AOC).

A SWMU is defined as any discernible unit at a RCRA facility in which solid wastes have been placed and from which hazardous constituents might migrate, regardless of whether the unit was intended to manage solid or hazardous waste.

The SWMU definition includes the following:

- RCRA-regulated units, such as container storage areas, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators, and underground injection wells
- Closed and abandoned units
- Recycling units, wastewater treatment units, and other units that EPA has usually exempted from standards applicable to hazardous waste management units
- Areas contaminated by routine and systematic releases of wastes or hazardous constituents. Such areas might include a wood preservative drippage area, a loading or unloading area, or an area where solvent used to wash large parts has continually dripped onto soils.

An AOC is defined as any area where a release to the environment of hazardous waste or constituents has occurred or is suspected to have occurred on a nonroutine and nonsystematic basis. This includes any area where a strong possibility exists that such a release might occur in the future.

The purpose of the PA is as follows:

- Identify SWMUs and AOCs at the facility
- Obtain information on the operational history of the facility
- Obtain information on releases from any units at the facility
- Identify data gaps and other informational needs to be filled during the VSI

The PA generally includes review of all relevant documents and files located at state offices and at the EPA Region 5 office in Chicago.

The purpose of the VSI is as follows:

- Identify SWMUs and AOCs not discovered during the PA
- Identify releases not discovered during the PA
- Provide a specific description of the environmental setting
- Provide information on release pathways and the potential for releases to each medium
- Confirm information obtained during the PA regarding operations, SWMUs, AOCs, and releases

The VSI includes interviewing appropriate facility staff; inspecting the entire facility to identify all SWMUs and AOCs; photographing all visible SWMUs; identifying evidence of releases; making a preliminary selection of potential sampling parameters and locations, if needed; and obtaining additional information necessary to complete the PA/VSI report.

This report documents the results of a PA/VSI of the Birmingham Steel facility (EPA Identification No. ILD 980 996 862) in Bourbonnais, Illinois. The PA was completed on October 12, 1992. RAI gathered and reviewed information from the Illinois Environmental Protection Agency (IEPA), the Illinois State Water Survey (ISWS), the Illinois Department of Nuclear Safety (IDNS), the U.S. Geological Survey (USGS), the U.S. Department of Commerce (USDC), the U.S. Department of Agriculture (USDA), the U.S. Department of the Interior (USDI), the National Oceanic and Atmospheric Administration (NOAA), the Federal Emergency Management Agency (FEMA), and from EPA Region 5 RCRA files. The VSI was conducted on October 13, 1992. It included interviews with facility representatives and a walk-through inspection of the facility. RAI identified seven SWMUs and no AOCs at the facility.

RAI completed EPA Form 2070-12 using information gathered during the PA/VSI. This form is included in Attachment A. The VSI is summarized and nine inspection photographs are included in Attachment B. Field notes from the VSI are included in Attachment C.

2.0 FACILITY DESCRIPTION

This section describes the facility's location; past and present operations; waste generating processes and waste management practices; a history of documented releases; regulatory history; environmental setting; and receptors.

2.1 FACILITY LOCATION

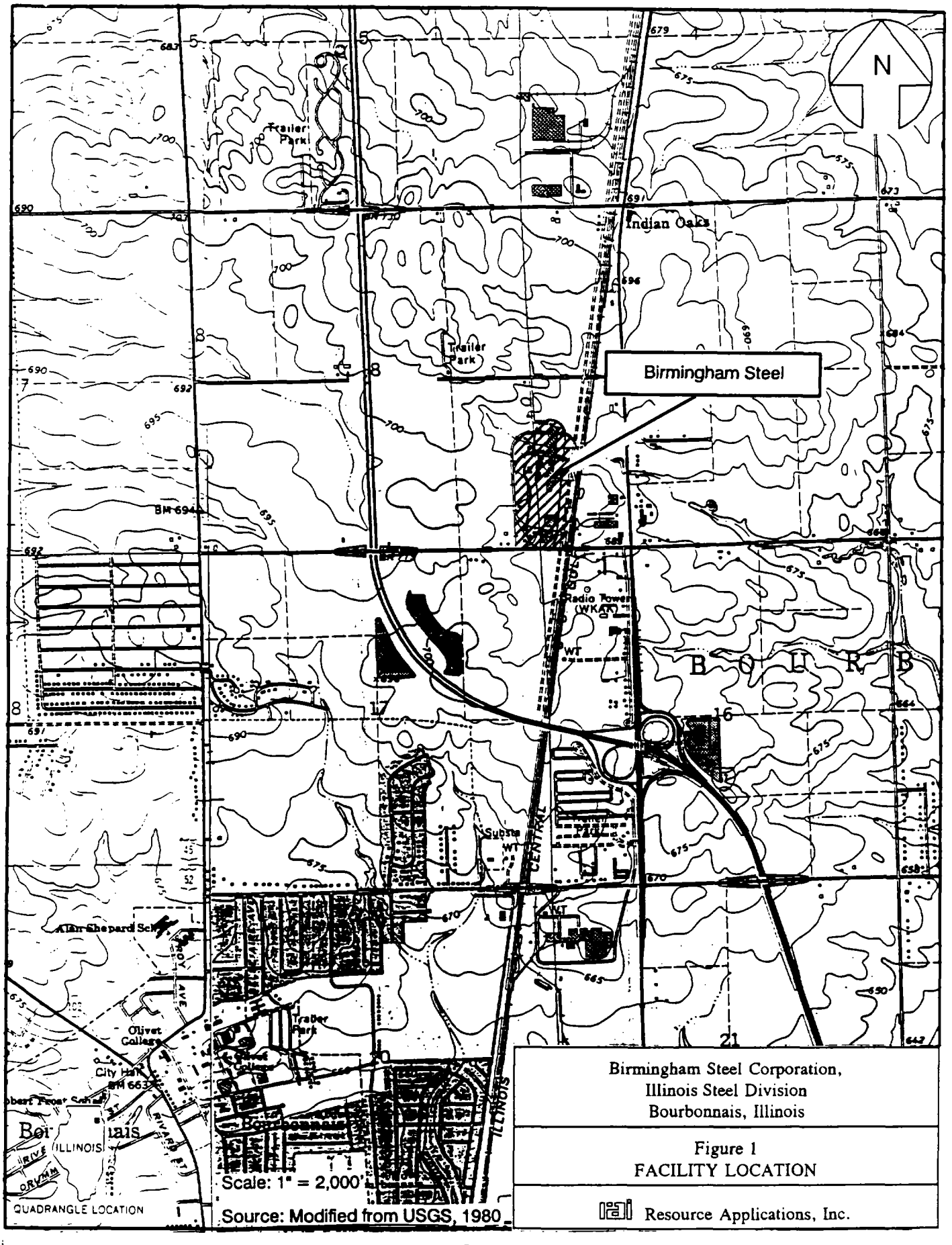
The Birmingham Steel facility is located at 972 East 4500 North Road in an agricultural and industrial area of Bourbonnais, Kankakee County, Illinois (latitude 41°10'00" N and longitude 89°32'20" W). Figure 1 shows the facility location in relationship to the surrounding topographic features. The facility includes two primary buildings comprising approximately 440,200 square feet of office, production, and storage space on a 102-acre parcel of land.

The Birmingham Steel facility is bordered on the north and west by agricultural land, on the south by a salvage yard, and on the east by the Illinois Central Railroad and a lumber company.

2.2 FACILITY OPERATIONS

The facility began operations in late 1977 as Alabama Birmingham Bolt Company (ABBC) and in 1984, the name was changed to Birmingham Bolt Company, Inc (BBC). In 1991, BBC merged into Birmingham Steel Corporation, Illinois Steel Division. ABBC acquired the property through Federal Bankruptcy Court in early 1977. According to Birmingham Steel representatives, the facility was constructed in 1962 and had several unknown owners until 1977. Prior to 1962, the area was agricultural land. The facility employs 285 people, 270 working in production, 7 days per week.

Birmingham Steel is a small steel mill (known in the industry as a "mini" mill) that manufactures reinforcing rods, hand rails, and grating products for the construction and fabricating industries. The facility produces approximately 0.75 million tons of steel annually. All products are manufactured from melting scrap steel. Birmingham Steel receives and melts approximately 500 million tons of scrap steel per year. Scrap steel is accumulated in piles located on the west side of the facility. It is sorted according to type and transferred to the electric Arc Furnace (SWMU 7) for



Birmingham Steel Corporation,
Illinois Steel Division
Bourbonnais, Illinois

Figure 1
FACILITY LOCATION

Resource Applications, Inc.

melting. Molten steel is poured into a ladle and transported to the casting department, where it is poured into various sized molds, forming billets. Billets are cut into specified lengths by gas-fired torches and are transferred to the rolling mill for final formation. The billets pass through a reheat furnace inside the rolling mill to equalize the temperature of the product. Once the steel is formed, it is bundled for shipping.

Melting scrap steel generates slag by-product. Slag separates in the melting operation and floats on the top of the molten steel. The slag is scraped from the top of molten steel and collected in the Boneyard Storage Area (SWMU 5). When a sufficient amount is accumulated, the slag is sold to the highest bidder for its aggregate value.

Mill scale by-product is generated from the rolling mill operation. Mill scale, consisting primarily of iron oxide, is collected in the rolling mill. When a sufficient amount is collected, the mill scale is sold to various material brokers, who sell it to portland cement manufacturers.

Arc furnace dust (K061) was managed in the Former Storage Cells (SWMU 2) from 1979 to 1985. Since 1985, the waste has been managed in the Baghouse Collection System (SWMU 1). Three connected Cooling Ponds (SWMU 4) are located on site and are used to cool contact cooling water prior to its recirculation back into the system. An Oil and Solids Separator (SWMU 6) is used to collect oil and solids waste. When ABBC acquired the facility in 1977, 89 drums of hazardous waste were stored in SWMU 5.

2.3 WASTE GENERATION AND MANAGEMENT

During steel production, Birmingham Steel generates arc furnace dust (K061), waste petroleum naphtha (D001, D018, D039), and the following nonhazardous wastes: used oil, contact cooling water, scale sludge, and oil and solids waste. The following wastes have been generated on a one-time only basis: ignitable wastes (D001), corrosive wastes (D002), chromium and lead wastes (D007, D008), contaminated soil (nonhazardous), and polychlorinated biphenyls (PCB). Facility SWMUs are identified in Table 1. The facility layout, including the location of the seven SWMUs identified during the VSI, is included as Figure 2. Table 2 summarizes the waste streams generated at the facility. Rates of waste generation are based on 1991 information provided by the facility.

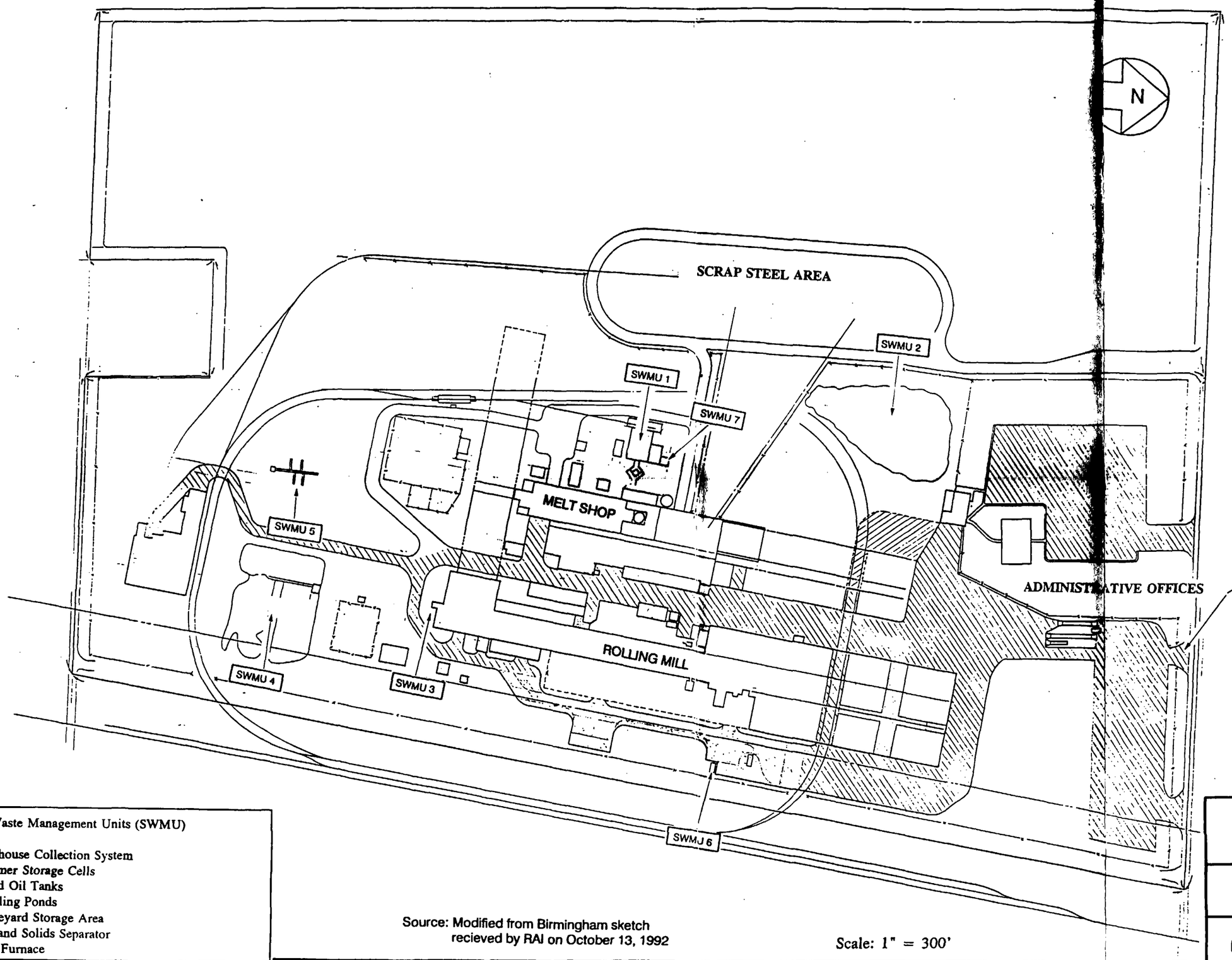
TABLE 1

SOLID WASTE MANAGEMENT UNITS

SWMU Number	SWMU Name	RCRA Hazardous Waste Management Unit[a]	Status
1	Baghouse Collection System	No	Active, manages hazardous wastes for less than 90 days.
2	Former Storage Cells	Yes	RCRA closed in 1985.
3	Used Oil Tanks	No	Active, manages nonhazardous waste.
4	Cooling Ponds	No	Active, manages nonhazardous waste.
5	Boneyard Storage Area	Yes	Inactive, ceased managing hazardous wastes in 1981.
6	Oil and Solids Separator	No	Active, manages nonhazardous waste.
7	Arc Furnace	No	Inactive as a SWMU, currently used as a process unit. Managed nonhazardous used oil.

Note:

[a] A RCRA hazardous waste management unit is one that currently requires or formerly required submittal of a RCRA Part A or Part B permit application.



Solid Waste Management Units (SWMU)

1. Baghouse Collection System
2. Former Storage Cells
3. Used Oil Tanks
4. Cooling Ponds
5. Boneyard Storage Area
6. Oil and Solids Separator
7. Arc Furnace

Source: Modified from Birmingham sketch recieved by RAI on October 13, 1992

Scale: 1" = 300'

Birmingham Steel Corporation,
Illinois Steel Division
Bourbonnais, Illinois

Figure 2
FACILITY LAYOUT

Resource Applications, Inc.

TABLE 2

SOLID WASTES

Waste/EPA Waste Code[a, b]	Source	Solid Waste Management Unit[c]
Arc Furnace Dust/K061	Arc Furnace	1 and 2
Arc Furnace Dust-Contaminated Soils/NA[d]	RCRA Closure of SWMU 2	None
Waste Petroleum Naphtha/D001, D018, D039	Parts Washers	None
Used Oil/NA	Production Machinery and Cooling Ponds	3 and 4
Contact Cooling Water/NA	Cooling System	4
Scale Sludge/NA	Cooling Ponds	None
Oil and Solids Waste/NA	Surface Water	4 and 6
Ignitable Wastes/D001[d]	Cleanup of Facility	5
Corrosive Wastes/D002[d]	Cleanup of Facility	5
Chromium and Lead Wastes/D007, D008[d]	Cleanup of Facility	5
Contaminated Soil/NA[d]	Transformer Explosion	7
PCBs, ORM/NA[d]	Transformers and Capacitors	None

Notes:

[a] Not applicable (NA) designates nonhazardous or special waste.

[b] ORM indicates other regulated material.

[c] "None" indicates that the waste stream is not managed on site.

[d] These wastes have been generated on a one-time only basis.

The Arc Furnace (SWMU 7) is used to melt scrap steel. In the process of heating scrap steel, arc furnace dust (K061) is generated and collected in a Baghouse Collection System (SWMU 1). The dust is then transported via an auger to a 100-cubic-yard rail car, also part of SWMU 1. Generated at a rate of 9,000 tons per year, the arc furnace dust is sent to Zinc National in Monterrey, Mexico, by the Illinois Central Railroad. Zinc National reclaims the zinc content of the arc furnace dust. Prior to 1985, arc furnace dust was transported from SWMU 1 in a 20-cubic-yard dumpster to the Former Storage Cells (SWMU 2). When SWMU 2 underwent RCRA closure, approximately 4,000 tons of arc furnace dust (K061) and 6,923 tons of arc furnace dust-contaminated soils (special waste) were removed by Peoria Disposal Company (PDC) and landfilled at its Peoria, Illinois landfill.

Birmingham Steel uses three Safety-Kleen Corporation (Safety-Kleen) parts washers to clean maintenance tools. Waste petroleum naphtha (D001, D018, D039) is generated at a rate of 1,600 gallons per year and is removed directly from process by Safety-Kleen for reclamation at its Chicago, Illinois facility.

Production machinery at the Birmingham Steel facility utilizes lubricating oil. During routine maintenance, nonhazardous used oil is generated. Used oil is pumped from each machine into 55-gallon steel drums, which are used solely for transport purposes. The drums are taken to the aboveground Used Oil Tanks (SWMU 3), and the used oil is pumped from the drums into SWMU 3.

Nonhazardous used oil is also generated from the cooling process for contact cooling water. Two oil skimmers, part of the contact cooling water Cooling Ponds (SWMU 4), collect used oil and transport it to two aboveground holding tanks, also part of SWMU 4. One holding tank is located next to each oil skimmer. Safety-Kleen removes used oil from SWMU 3 and SWMU 4 at a rate of 1,000 gallons every 6 months. Safety-Kleen reclaims the used oil at its Chicago, Illinois facility.

Water is used to control the temperature of steel and slag at the facility. An internal drainage system carries the nonhazardous contact cooling water to the three-stage Cooling Ponds (SWMU 4). The contact cooling water is then recirculated back into the system. Birmingham Steel has a National Pollutant Discharge Elimination System (NPDES) permit to discharge contact cooling water from SWMU 4 through outfall 002 to the unnamed ditch that leads to Soldier Creek. However, discharges from SWMU 4 occur on an emergency basis only. On an annual basis, the bottom of SWMU 4 is

dredged, generating approximately 3,000 cubic yards of scale sludge. According to analysis conducted by General Engineering Laboratories (GEL), the scale sludge is nonhazardous (GEL, 1991). Flowers Construction Company (Flowers) of Kankakee, Illinois removes the scale sludge, which is then sold to the highest bidder. Scale sludge is not managed on site.

All surface water drains through facility storm sewers and discharges through NPDES outfall 001 to the unnamed ditch that leads to Soldier Creek. Before the surface water is discharged, it passes through the Oil and Solids Separator (SWMU 6), which removes nonhazardous oil and solids waste before the surface water is discharged. Flowers pumps approximately 300 gallons per month of the oil and solids waste from SWMU 6 into trucks and transports the waste to SWMU 4, where it is managed with the contact cooling water.

In 1981, ABBC collected numerous drums that were left by the previous owner. Thirty-seven drums of ignitable wastes (D001), 17 drums of corrosive wastes (D002), and 35 drums of chromium and lead wastes (D007 and D008) were removed from the Boneyard Storage Area (SWMU 5) by Kankakee Industrial Disposal for landfilling at the Chemical Waste Management Landfill in Calumet City, Illinois. The wastes were stored on site for greater than 90 days.

A transformer exploded in 1990 causing soil surface water contamination at the NPDES outfall from the Oil and Solids Separator (SWMU 6) (see Section 2.4). Twenty cubic yards of nonhazardous contaminated soil were excavated at outfall 001 by Birmingham Steel employees and transported to the Arc Furnace (SWMU 7) for incineration. Normally used to melt scrap metal, the Arc Furnace was used to burn the contaminated soil and thus became a SWMU.

In 1991, five drums of PCB transformers, one drum of PCB capacitors, and eight drums of unspecified PCB-contaminated material were shipped off-site by United States Pollution Control, Inc. (USPCI) for incineration at its Kansas City, Missouri facility. According to facility representatives, no other PCB-related material remains on site.

2.4 HISTORY OF DOCUMENTED RELEASES

This section discusses the history of documented releases to ground water, surface water, air, and on-site soils at the facility.

Each time wastes were placed in the Former Storage Cells (SWMU 2), a release to on-site soils occurred. When the unit was RCRA-closed in 1985, approximately 4,000 tons of arc furnace dust (K061) and 6,923 tons of arc furnace dust-contaminated soils (special waste) were removed by PDC and landfilled at its Peoria, Illinois, landfill. Closure of this unit met the requirements of an IEPA-approved closure plan (IEPA, 1986).

According to an IEPA document, a transformer exploded on September 25, 1990, releasing an unknown amount of transformer oil to the unnamed ditch at outfall 001 through the Oil and Solids Separator (SWMU 6) (IEPA, 1990). The Bourbonnais Fire Department put out the fire and during this process, the oil was flushed into the storm sewer, which leads to SWMU 6. SWMU 6 separates oil and solids waste before surface water is discharged out NPDES outfall 001. The unusually large amount of water used to put out the fire caused the oil to flow through SWMU 6 without adequate separation, resulting in a release of oil to surface water and on-site soils. However, according to facility representatives, transformer oil was not released, and the material that entered the ditch was only charred debris from the building that housed the transformer. Approximately 20 cubic yards of nonhazardous contaminated soil were removed from the ditch by facility employees and transported to the Arc Furnace (SWMU 7) for incineration. Soil analysis conducted in the ditch by Total Environmental Service Technologies (TEST) after the contaminated soil was removed showed oil and grease concentrations at 3 milligrams per liter (mg/L) (TEST, 1990). Analysis of the oil confirmed that no PCBs were present (TEST, 1990). There are no documents in IEPA files indicating that the matter was resolved.

A 1985 IEPA NPDES inspection detected levels of total suspended solids (TSS) above NPDES-permitted limits at outfall 001 (IEPA, 1985b). Permit limits for TSS are 15 parts per million (ppm) and effluent levels were at 130 ppm. The cause for the excursion was buildup of grit and debris inside the Oil and Solids Separator (SWMU 6). The facility increased the frequency of cleaning the unit and no excursions have been reported since 1985.

During a 1982 IEPA NPDES inspection, oil was detected in the effluent of outfall 002 (IEPA, 1982a). Outfall 002 is an overflow discharge for the Cooling Ponds (SWMU 4). The cause was inadequate separation of oil and water at the oil skimmer. Unlike the baffle separator at the Oil and Solids Separator (SWMU 6), a rope skimmer is utilized to remove oil from SWMU 4. To prevent future discharges of oil from SWMU 4, the facility added a third cooling pond, a second rope skimmer, and a discharge shut-off valve to the unit. Now the valve has to be opened by facility personnel in order for discharges to occur. Outfall 002 is currently used on an emergency only basis. According to IEPA documents, this was an adequate response and no further action was required (IEPA, 1982b).

There have been no other documented releases at the Birmingham Steel facility.

2.5 REGULATORY HISTORY

BBC submitted a Notification of Hazardous Waste Activity form to EPA on December 3, 1984 (BBC, 1984b). The notification designated the company as a generator of hazardous waste. A RCRA Part A permit application was submitted to EPA on September 6, 1984, indicating that BBC stored D006 and D008 wastes in a waste pile (S03) (BBC, 1984a). In a letter from IEPA to EPA, it was indicated that the waste in the waste piles was arc furnace dust, which should be classified as K061, and not D006 and D008 (IEPA, 1984b). The S03 process code referred to the Former Storage Cells (SWMU 2). BBC submitted a closure plan on December 17, 1984 for closure of SWMU 2 (BBC, 1984c). The closure plan was approved by IEPA on March 18, 1985 and a November 7, 1985, IEPA inspection concluded that closure met the requirements set forth in the plan (IEPA, 1986). Birmingham Steel is currently regulated as a large-quantity generator.

During a July 13, 1984, IEPA RCRA inspection, it was determined that BBC had not submitted a Notification of Hazardous Waste Activity form or a RCRA Part A permit application. The inspection also revealed that the facility did not have a contingency plan, a closure plan, and it had failed to submit annual reports (IEPA, 1984a). There was no information available as to whether the violations were submitted to IEPA's or EPA's enforcement branch. The violations concerning the failure to submit a notification and permit application were resolved when BBC did so later in 1984. However, the facility was operating without interim status between 1980 and 1984. The lack of a

contingency plan was also noted during an April 30, 1985, IEPA RCRA inspection (IEPA, 1985a). A July 18, 1988, IEPA RCRA inspection did not uncover any violations (IEPA, 1988). Therefore, the above-mentioned outstanding violations are assumed to have been resolved between July 13, 1984 and July 18, 1988.

Birmingham Steel has an NPDES permit (No. IL0035297) that expires on November 1, 1993. The permit allows the facility to discharge surface water (outfall 001) and contact cooling water (outfall 002) (IEPA, 1989). The outfalls lead to an unnamed ditch, which eventually discharges to Soldier Creek. Outfall 001 discharges effluent from the Oil and Solids Separator (SWMU 6) and outfall 002 is an emergency discharge for contact cooling water from the Cooling Ponds (SWMU 4). Both outfalls are monitored for biochemical oxygen demand (BOD), TSS, oil and grease, pH, temperature, and total iron.

Several NPDES permit violations have been reported at Birmingham Steel. The violations were discovered during 1982, 1985, and 1990 IEPA inspections (IEPA, 1982a, 1985b, and 1990). The violations include exceeding the effluent parameters, failure to submit discharge monitoring reports, and failure to routinely monitor the effluent. There have been no enforcement actions taken against Birmingham Steel concerning these violations.

Birmingham Steel has an Illinois Radioactive Material License (No. A-01682-01) with the IDNS (IDNS, 1991). The purpose of the license is to allow the facility to temporarily handle any radioactive material that inadvertently enters the facility via the numerous scrap haulers bringing in scrap steel. No violations have been documented and no radioactive material has been brought on site.

Birmingham Steel has an air permit (No. 091801AAA) to operate emission source control equipment for the Baghouse Collection System (SWMU 1) and reheat furnace (IEPA, 1992). The permit expires on September 18, 1995. No violations of the air permits have been reported.

Ecology and Environment, Inc., (E&E) conducted a Field Investigation Team (FIT) inspection at Birmingham Steel on September 15, 1987 to ascertain whether the facility should be included on the National Priorities List (NPL) for hazardous waste sites (E&E, 1987). According to EPA files,

the FIT inspection was conducted in order to evaluate the Former Storage Cells (SWMU 2) as a possible Superfund site. Birmingham Steel was discharging arc furnace dust (K061) to SWMU 2 from 1980 to 1984 without interim status. No information concerning Hazard Ranking System (HRS) scoring was found in EPA or IEPA files. However, the facility was not designated a Superfund site.

The are no underground storage tanks (UST) located on site, nor have there been any USTs located on site.

2.6 ENVIRONMENTAL SETTING

This section describes the climate, flood plain and surface water, geology and soils, and ground water in the vicinity of the Birmingham Steel facility.

2.6.1 Climate

The climate in Kankakee County is typically continental with cold winters, warm summers, and frequent short periods of fluctuations in temperature, humidity, cloudiness, and wind direction. The average daily temperature is 50.9 degrees Fahrenheit (°F). The lowest average daily temperature is 23.8°F in January. The highest average daily temperature is 74.0°F in July (Ruffner, 1978).

The total annual precipitation for the county is 33.84 inches (NOAA, 1975). The mean annual lake evaporation for the area is about 31 inches (USDC, 1968). The net annual precipitation is 2.84 inches. The 1-year, 24-hour maximum rainfall is 6.70 inches (Ruffner, 1978).

The prevailing wind is from the west. Average wind speed is highest in March at 11.8 miles per hour from the west (Ruffner, 1978). The average wind speed is 10.3 miles per hour from a westerly direction (Ruffner 1978).

2.6.2 Flood Plain and Surface Water

The Birmingham Steel facility is located outside the 500-year flood plain (FEMA, 1979). The nearest surface water body, Soldier Creek, is located 2.25 miles east of the facility and is used for

recreational, and some agricultural purposes. This surface water body discharges to the Kankakee River.

On-site surface water drains into an internal storm sewer system and discharges to an unnamed ditch, through an NPDES-permitted outfall. The ditch flows along the eastern boundary of the facility and discharges into Soldier Creek approximately 2.25 miles southeast of Birmingham Steel (USGS, 1980). Soldier Creek discharges into the Kankakee River approximately 4 miles south of the facility. The Kankakee River flows westerly and discharges into the Illinois River.

2.6.3 Geology and Soils

The vast majority of the facility is underlain by Beecher silt loam soils. These are nearly level to gently sloping, poorly drained soils, formed in thin silty deposits and the underlying glacial till. The surface layer is a dark gray heavy silt loam, and is underlain by silty clay loam. Permeability is slow and available water capacity is moderate. A small area of Milford silty clay loam, a poorly drained soil formed in silty clay loam glacial sediments, is also present beneath the northeastern part of the facility. This is a poorly drained, moderately slowly permeable unit with high available water capacity. The southwestern corner of the site is underlain by Elliott silt loam, a nearly level, poorly drained soil unit formed in thin silty deposits and the underlying silty clay loam glacial silt. The soil has moderately low permeability, moderate available water capacity, and ranges in thickness from 60 to 70 inches (USDA, 1979). The unconsolidated deposits, or drift, underlying the soil consist of clay, silt, and sand deposited during successive glacial advances and retreats. The predominant drift material in the area is thin loess on silty clay or loam underlain by Wisconsin age till (pebbly clay), or lacustrine sediments. No site-specific geologic information was available, but the drift may be up to 175 feet thick in the county (Cravens, et al, 1990).

The uppermost bedrock underlying the facility is Silurian in age, and consists of approximately 400 feet of fractured dolomites and dolomitic limestones of the Nigerian and Alexandrian series. These dolomitic beds form a major aquifer, confined on the upper boundary by the clayey drift units, and on the lower boundary by the Maquoketa Group of Ordovician age. The latter group consists of upper and lower units of shale with a middle unit of interbedded dolomite and limestone. Beneath the 300-foot-thick Maquoketa Group are deeper aquifers, such as the Galena-Platteville dolomites (200 feet thick) and Glenwood-St. Peter sandstones (about 100 feet thick) of

Ordovician age, and the Cambrian Ironton-Galesville sandstones (175 feet thick) and Eau Claire dolomitic shales and siltstones (thickness unknown). Pre-Cambrian granite rock underlies the Cambrian formations at a depth of approximately 4,000 feet (Willman, 1971).

2.6.4 Ground Water

The sand and gravel drift units beneath the facility provide water for domestic and agricultural purposes. The average yield from drift wells in the region is about 400 gallons per minute (gpm). According to the Consumer Illinois Water Company (CIW), wells are up to 175 feet deep, but the water table at the facility can be reached at 3 to 5 feet (CIW, 1992). The principal bedrock aquifer is the Silurian dolomitic beds. Movement of ground water is principally due to secondary permeable solution cavities and joints. These openings occur chiefly in the upper 100 feet of bedrock. Recharge of the aquifer is derived primarily from vertical leakage of ground water from the overlying drift deposits. Ground water in the drift units flows laterally to discharge in streams and rivers. Thus, ground water in the drift units underlying the facility flows southwest towards the Kankakee River (Cravens, et al, 1990).

The vast majority of the water wells in Kankakee County are completed in Silurian dolomite bedrock, with the remainder completed in shallower glacial sand and gravel. The deeper Ordovician aquifers are not an important source of ground water in the region, as the Maquoketa shale acts as an aquitard, hindering recharge of the deep aquifer (Cravens, et al, 1990).

Irrigation accounted for an estimated 63 percent of ground water used in Kankakee County in 1987. Public water supply systems account for 15 percent, domestic pumpage was 17 percent, industrial use was 1 percent, and livestock pumpage was 2 percent. No domestic ground water wells are located in the Village of Bourbonnais. The water table has rarely dropped below the top of the bedrock, and current usage will not seriously deplete the storage reservoir (Cravens, et al, 1990).

2.7 RECEPTORS

The Birmingham Steel facility includes 440,200 square feet of building space on a 102-acre parcel of land in an industrial and agricultural area of Bourbonnais, Illinois. Bourbonnais has a population of about 14,000 people.

The facility is bordered on the north and west by agricultural land; on the east by the Illinois Central Railroad and a lumber company; and on the south by a salvage yard. The nearest residence is approximately 1,000 feet southeast of the facility. The nearest school, Bradley-Bourbonnais High School is located 2 miles southwest of the facility. Birmingham Steel has 24-hour security guards, a fenced perimeter, and video monitoring.

The Village of Bourbonnais receives water from the Kankakee Metropolitan Water Reclamation District, which draws water from the Kankakee River. The intake is located approximately 5.25 miles south of the facility. There are no ground water wells within 2 miles of the facility. The nearest surface water is an unnamed ditch that flows along the eastern boundary of the facility. The ditch discharges into Soldier Creek, approximately 2.25 miles southeast of the facility.

There are no sensitive environments within 2 miles of the facility. The nearest wetlands is located about 4 miles southeast of the facility.

3.0 SOLID WASTE MANAGEMENT UNITS

This section describes the seven SWMUs identified during the PA/VSI. The following information is presented for each SWMU: description of the unit, dates of operation, wastes managed, release controls, history of documented releases, and RAI's observations. Figure 2 shows the SWMU locations.

SWMU 1 **Baghouse Collection System**

Unit Description: The Baghouse Collection System consists of two baghouses (active and former), a vacuuming system, and a 100-cubic-yard closed-top steel rail car. The active unit is located on the west side of the facility and is used to collect dust generated when steel is melted. The former unit is located 250 feet southeast of the active unit. Arc Furnace Dust (K061) is vacuumed from the arc furnace via a vacuuming system and is accumulated in a 540,000 actual cubic feet per minute (ACFM) positive pressure baghouse. An auger is used to transfer the waste to the rail car. The rail car is enclosed inside a 30-foot by 90-foot steel structure and rests on railroad tracks. The baghouse is constructed of steel and rests on 8 inches of concrete (see Photograph No. 1).

Date of Startup: The former baghouse began operations in 1977 and ceased in 1987, when the new baghouse was installed. The former unit is used as a backup, in case the active unit fails.

Date of Closure: This unit is active.

Wastes Managed: This unit manages arc furnace dust (K061), which is sent by rail car to Zinc National in Monterrey, Mexico.

Release Controls:	The unit itself is a release control for arc furnace dust. The dust is accumulated inside a covered steel rail car. There are no other release controls associated with this unit.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	The concrete beneath the unit did not contain cracks and the rail car was free of rust and corrosion. RAI noted no evidence of release.

SWMU 2 **Former Storage Cells**

Unit Description:	The Former Storage Cells were located outdoors, northwest of facility operations and were used to store arc furnace dust (K061). Five cells were located in a man-made silty clay mound, 20 feet high, and covering an area measuring 200 feet by 300 feet. All five cells were excavated out of the mound to an approximate capacity of 1,100 cubic yards. In 1985, the unit underwent RCRA closure and ceased managing wastes. The IEPA-approved closure plan stated that concentrations in the soil for cadmium would not exceed 0.1 milligram per liter (mg/L), and lead and total chromium concentrations would not exceed 0.5 mg/L. No ground water sampling was specified in the closure plan. As part of closure, 4,000 tons of arc furnace dust (K061) and 6,923 tons of arc furnace dust-contaminated soils (special waste) were excavated (see Photograph No. 2).
Date of Startup:	The unit began operations in 1979.
Date of Closure:	The unit ceased storing wastes in 1984 and met the requirements of an IEPA-approved closure plan in 1985.

Wastes Managed:	The unit stored arc furnace dust (K061) from 1979 to 1984. In 1985, the facility began closure and the arc furnace dust was removed by PDC and sent to its landfill in Peoria, Illinois.
Release Controls:	The cells were located in a 20-foot-high mound to prevent surface water from entering the unit. The cells were unlined.
History of Documented Releases:	Each time wastes were discharged into the unit, a release to on-site soils occurred (see Section 2.4).
Observations:	Due to vegetation, the actual location of each specific cell could not be determined. No evidence of a release was noted by RAI.

SWMU 3 **Used Oil Tanks**

Unit Description:	The Used Oil Tanks are located outdoors, south of the rolling mill. The unit, consisting of two 500-gallon aboveground steel tanks, is used to accumulate used oil generated from facility operations. The tanks are located on top of 8 inches of concrete and are surrounded by an 8-inch-thick, 3-foot-high concrete berm (see Photograph No. 3).
Date of Startup:	The unit began operations in 1977.
Date of Closure:	The unit is currently active.
Wastes Managed:	The unit manages nonhazardous used oil, which is picked up by Safety-Kleen for reclaiming at its Chicago facility.
Release Controls:	The used oil is managed inside steel tanks, surrounded by a 3-foot-high containment berm.

History of Documented Releases: No releases have been documented from this unit.

Observations: No cracks were observed in the concrete base or berm. No rust or cracks were noticed in the tanks. Some gravel with dark stains was observed on the east side of the unit, outside the berm.

SWMU 4 **Cooling Ponds**

Unit Description: The Cooling Ponds are located outdoors, south of the Used Oil Tanks (SWMU 3). Contact cooling water is cooled by air, while flowing through the three-stage system. The system consists of three 6-foot-deep ponds, two oil skimmers, and two aboveground steel used oil collection tanks. The first-stage pond measures 200 feet by 50 feet and is the initial receiving pond for contact cooling water. The second- and third stages measure 100 feet by 50 feet, each has an oil skimmer and collection tank which removes oil prior to recirculation of the cooling water. The collection tank associated to the second stage has a 750-gallon capacity and the collection tank associated with the third stage has a 500-gallon capacity (see Photographs No. 4, 5, and 6).

Date of Startup: This unit began operations in 1977.

Date of Closure: This unit is currently active.

Wastes Managed: This unit manages contact cooling water (nonhazardous), used oil (nonhazardous), and oil and solids waste (nonhazardous). Once cooled, the contact cooling water is recirculated through the system. Used oil is removed for reclaiming by Safety-Kleen. On an annual basis, scale sludge (nonhazardous) is dredged from the bottom of the Cooling Ponds and sold to the highest bidder.

Release Controls:	The facility has an NPDES permit (outfall 002) that allows for an emergency discharge of contact cooling water to an unnamed ditch. Naturally occurring silty clay soils lie beneath the ponds. The ponds are also surrounded by a 6-foot-high earthen berm. The oil collection tanks do not have secondary containment.
History of Documented Releases:	Because the unit is unlined, a release to on-site soils occurs each time wastes are placed in the unit. In 1982, an oil release beyond the facility's NPDES permit limits was observed during an IEPA NPDES inspection (see Section 2.4).
Observations:	A slight oil sheen was visible on top of each pond. Both tanks that collect used oil appeared crack-free. However, the tank connected to the third stage of the unit had some rust spots. No oily odor was detected and no evidence of a release was observed.
SWMU 5	**Boneyard Storage Area**
Unit Description:	The Boneyard Storage Area is located outdoors 100 feet northwest of the Cooling Ponds (SWMU 4). The unit was used as a greater than 90-day storage area for hazardous wastes. According to facility representatives, the wastes were left by the previous owner and were not discovered until 1981. The area measures approximately 50 feet by 50 feet and has a gravel and slag base. There is no fence or berm around the unit. The area is currently used to manage slag by-product (see Photograph No. 7).
Date of Startup:	This unit began operations in early 1981.
Date of Closure:	This unit ceased operations in October 1981.

Wastes Managed:	The unit managed ignitable wastes (D001), corrosive wastes (D002), and chromium and lead wastes (D007, D008). The exact constituents were unknown. The wastes were sent to the Chemical Waste Management Landfill in Calumet City, Illinois.
Release Controls:	Wastes were stored inside 55-gallon steel drums. The unit did not have secondary containment.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	Birmingham Steel currently uses the unit for slag storage. No wastes were observed and no evidence of a release was noted.

SWMU 6 **Oil and Solids Separator**

Unit Description:	The Oil and Solids Separator is located outdoors, on the east side of the facility and is used to collect oil and solids from surface water. The concrete unit measures 19 feet long, 8 feet wide, approximately 11 feet deep, and has 1-foot-thick walls. A steel baffle divides the unit to allow oil and solid separation. After separation, the effluent is discharged through an NPDES-permitted outfall to an unnamed ditch (see Photograph No. 8).
Date of Startup:	The unit began operations in the late 1970s.
Date of Closure:	The unit is currently active.
Wastes Managed:	The unit manages nonhazardous oil and solids waste. The chamber that collects surface water is periodically cleaned out and the oil and solids waste is transferred to the Cooling Ponds (SWMU 4).

Release Controls:	The unit has 12-inch-thick concrete walls and has a steel baffle that separate oil and solids from discharged effluent.
History of Documented Releases:	The September 25, 1990 transformer explosion resulted in transformer oil passing through the unit and out the NPDES-permitted outfall. In 1985, a grab sample of the effluent at outfall 001 showed that TSS levels exceeded the limits set in the facility's NPDES permit. The excursion was caused by a buildup of grit and debris in the unit. The facility remedied the problem by increasing the frequency of cleaning (see Section 2.4).
Observations:	During the VSI, no cracks in the unit or evidence of a release was observed.
SWMU 7	**Arc Furnace**
Unit Description:	The unit is located inside the Melt Shop and is designed to melt scrap steel. In 1990, facility employees incinerated contaminated soil, generated from the transformer explosion. Operating at a temperature of 6,000°F, the egg-shaped unit is lined with refractory brick and has a maximum diameter of 18 feet and a maximum height of 21 feet (see Photograph No. 9).
Date of Startup:	The unit began operations in 1977 as a process unit. In 1990, it was used as a SWMU.
Date of Closure:	The unit stopped operating as a SWMU in 1990. The unit is currently active as a process unit and inactive as a SWMU.
Wastes Managed:	The unit was used to incinerate nonhazardous contaminated soil in 1990.

Release Controls:	The unit has a refractory-lined brick interior. The Baghouse Collection System (SWMU 1) is used to collect arc furnace dust generated from melting scrap steel.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	During the VSI, no cracks in the unit or evidence of a release was observed.

4.0 AREAS OF CONCERN

RAI identified no AOCs during the PA/VSI. No USTs are currently located or have been located on site. All releases at the facility have been remediated.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The PA/VSI identified seven SWMUs and no AOCs at the Birmingham Steel facility. Background information on the facility's location; operations; waste generation and management; history of documented releases; regulatory history; environmental setting; and receptors is presented in Section 2.0. SWMU-specific information, such as the unit's description, dates of operation, wastes managed, release controls, history of documented releases, and observed condition, is presented in Section 3.0. Following are RAI's conclusions and recommendations for each SWMU. Table 3, at the end of this section, summarizes the SWMUs at the facility and the recommended further actions.

SWMU 1 **Baghouse Collection System**

Conclusions: The unit controls and manages arc furnace dust (K061) generated from the facility's Arc Furnace (SWMU 7). Arc furnace dust is accumulated in a baghouse and transferred to a steel, closed-top rail car. The baghouse is constructed of steel and rests on 8-inches of concrete. Therefore, potential for release to ground water, surface water, air, or on-site soils is low.

Recommendations: RAI recommends no further action for this unit.

SWMU 2 **Former Storage Cells**

Conclusions: The unit was used to store arc furnace dust (K061) from 1979 to 1984 and met the requirements of an IEPA-approved RCRA closure plan in 1985. During closure, 4,000 tons of arc furnace dust (K061) and 6,923 tons of arc furnace dust-contaminated soil (special waste) were removed from the unit. Soil analysis was conducted at the unit after the contaminated soil was removed; sample results showed that the unit was remediated according to the levels set forth in the closure plan. A release to on-site soil occurred each time wastes were placed in the unit. Ground water can be reached at a depth of 3 to 5 feet

below the surface, so past potential for release to ground water was high. However, ground water wells in the area are drilled to a depth of 175 feet, so past potential for contaminants to enter useable ground water was low. Wastes were managed in the ground, in a silty clay soil. Thus, past potential for release to surface water or air was low. Because the unit no longer manages waste and has undergone RCRA closure, current potential for release to ground water, surface water, air, and on-site soil is low.

Recommendations: RAI recommends no further action for this unit.

SWMU 3 **Used Oil Tanks**

Conclusions: The unit is used to accumulate used oil collected from facility machines and the Cooling Ponds (SWMU 4). Wastes are managed inside two 500-gallon aboveground steel tanks, located on 8 inches of concrete and surrounded by a 3-foot-high concrete berm. Therefore, potential for release to ground water, surface water, air, or on-site soils is low.

Recommendations: RAI recommends no further action for this unit.

SWMU 4 **Cooling Ponds**

Conclusions: The unit is a three-stage system designed to lower the temperature of nonhazardous contact cooling water before recirculation back through the cooling system. The unit also manages nonhazardous oil and solids waste generated from the Oil and Solids Separator (SWMU 6). Because the unit is unlined, each time contact cooling water and oil and solids wastes are put inside it, a release to on-site soils occurs. However, the unit is cleaned out annually by removing the nonhazardous scale sludge, thus the release does not pose a long term

threat to the environment. A release of oil to surface water occurred in 1982 due to faulty separation. A second oil skimmer was added to prevent future releases. The unit now has two oil skimmers and adjoining collection tanks. The Cooling Ponds are underlain by naturally occurring silty clay soil. The nonhazardous used oil collected by the oil skimmers is managed inside steel tanks. Therefore, potential for release to ground water or air is low.

Recommendations: RAI recommends no further action for this unit.

SWMU 5 **Boneyard Storage Area**

Conclusions: The unit was used to store hazardous waste left by the previous land owner. According to facility representatives, the waste were not discovered until early 1981, even though the facility was purchased by ABBC in 1977. In October 1981, the wastes were removed from the facility. The unit managed hazardous waste for greater than 90 days and is therefore a RCRA-regulated unit and should undergo RCRA closure. Wastes were managed in 55-gallon steel drums of unknown integrity, placed directly on top wooden pallets located above unlined soil. Therefore past potential for release to ground water, surface water, air, or on-site soils is unknown. Because the unit no longer manages wastes, current potential for release to ground water, surface water, air, and on-site soil is low.

Recommendations: The unit managed wastes for greater than 90 days and has not been RCRA-closed; therefore, RAI recommends that the unit undergo RCRA closure. Because the integrity of the drums is unknown, RAI also recommends conducting soil analysis as part of closure. If contamination is detected, the area should be remediated.

SWMU 6 **Oil and Solids Separator**

Conclusions:

The unit separates oil and solids from surface water, before the water is discharged through an NPDES-permitted outfall. During a 1985 IEPA inspection, TSS levels in the effluent were detected above permitted limits resulting in a release to surface water. The facility increased the frequency at which the unit was cleaned, thus remedying the situation. According to a 1990 IEPA document, a transformer exploded on September 25, 1990, releasing an unknown amount of transformer oil. As the resulting fire was being extinguished, the oil was flushed into the storm drains, which discharge into this unit. The unusually large amount of water flushed into the unit caused the oil to flow through the unit without adequate separation, resulting in a release to surface water and on-site soils. However, according to facility representatives, transformer oil was not released, and the material that entered the ditch was only charred debris from the building that housed the transformer. Approximately 20 cubic yards of nonhazardous contaminated soil were removed from the ditch by facility employees and transported to the Arc Furnace (SWMU 7) for incineration. Because the wastes managed at the unit are not volatile and are managed in a concrete unit, potential for a release to ground water or air is low.

Recommendations:

RAI recommends that soils in the unnamed ditch located at outfall 001 be analyzed for the presences of oils. If contamination is detected in the soil, then the area should be remediated. If no contamination is detected, then RAI recommends no further action for this unit.

SWMU 7 **Arc Furnace**

Conclusions: The Arc Furnace is used to melt scrap steel in preparation for formation into final product. In 1990, 20 cubic yards of nonhazardous contaminated soil were incinerated in the unit, making the process unit a SWMU. The facility has not used the unit as an incinerator since 1990. Because nonhazardous oil is not regulated under RCRA, closure of the unit is not required. The unit is located indoors and is constructed of refractory brick. Therefore, potential for release to ground water, surface water, air, or on-site soils is low.

Recommendations: RAI recommends no further action for this unit.

TABLE 3

SWMU SUMMARY

SWMU	Dates of Operation	Evidence of Release	Recommended Further Action
1. Baghouse Collection System	1977 to Present	None	RAI recommends no further action for this unit.
2. Former Storage Cells	1979 to 1985	A release to on-site soils occurred each time wastes were placed in the unit. The unit has been remediated.	RAI recommends no further action for this unit.
3. Used Oil Tanks	1977 to Present	A dark surface stain was noted on the east side of the unit during the VSI.	RAI recommends no further action for this unit.
4. Cooling Ponds	1977 to Present	Oil was detected in effluent in 1982.	RAI recommends no further action for this unit.
5. Boneyard Storage Area	1981 to 1981	None	RAI recommends RCRA closing the unit. As part of closure, soil analysis should be conducted to determine if a release occurred. If contamination is detected, then remediate the area.
6. Oil and Solids Separator	Late 1970s to present	TSS at 130 ppm were detected in effluent in 1985. A 1990 explosion resulted in release to soils and surface water (see Section 2.4).	RAI recommends conducting soil analysis at outfall 001 for oil contamination. If contamination is detected, then remediate the area.
7. Arc Furnace	1990 to 1990	None	RAI recommends no further action for this unit.

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ATTACHMENT A

EPA PRELIMINARY ASSESSMENT FORM 2070-12

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
IL	ILD 980 996 862

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER			
Birmingham Steel Corporation, Illinois Steel Division	972 East 4500 North Road			
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
Bourbonnais	IL	60914	Kankakee		
09 COORDINATES: LATITUDE	**LONGITUDE**			
41° 10' 00" N	87° 52' 20" W			

10 DIRECTIONS TO SITE *(Starting from nearest public road)*

Interstate 57 south to Highway 50 east to 4500 North Road, north to facility.

III. RESPONSIBLE PARTIES

01 OWNER *(If known)*	02 STREET *(Business, mailing residential)*		
Birmingham Steel Corporation	3000 Riverchase Galleria		
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 TELEPHONE NUMBER**
Birmingham	AL	35244	(205) 444-3251
07 OPERATOR *(If known and different from owner)*	**08 STREET** *(Business, mailing, residential)*		
Birmingham Steel Corporation, Illinois Steel Division	972 East 4500 North Road		
09 CITY	**10 STATE**	**11 ZIP CODE**	**12 TELEPHONE NUMBER**
Bourbonnais	IL	60914	

13 TYPE OF OWNERSHIP *(Check one)*

■ A. PRIVATE ☐ B. FEDERAL: _____ *(Agency name)* ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL

☐ F. OTHER _____ *(Specify)* ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE *(Check all that apply)*

■ A. RCRA 3010 DATE RECEIVED: 12 / 04 / 84 (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE *(CERCLA 103 c)* DATE RECEIVED: ___ / ___ / ___ (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

■ YES DATE 10 / 13 / 82

☐ NO

BY *(Check all that apply)*

☐ A. EPA ■ B. EPA CONTRACTOR ☐ C. STATE ☐ D. OTHER CONTRACTOR

☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ *(Specify)*

CONTRACTOR NAME(S): Resource Applications, Inc.

02 SITE STATUS *(Check one)*

■ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION

1977 (BEGINNING YEAR) | Present (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Petroleum naphtha, oil, and arc furnace dust (K061). Ignitable, corrosive, and chromium and lead waste were managed on site. Insufficient information is available to determine if a release may have occurred.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

There are no potential hazards to the environment and/or population.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION *(Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents.)*

☐ A. HIGH *(Inspection required promptly)* ☐ B. MEDIUM *(Inspection required)* ■ C. LOW *(Inspect on time-available basis)* ☐ D. NONE *(No further action needed; complete current disposition form)*

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF *(Agency/Organization)*			03 TELEPHONE NUMBER
Kevin Pierard	EPA Region V			(312) 886-4448
04 PERSON RESPONSIBLE FOR ASSESSMENT	**05 AGENCY**	**06 ORGANIZATION**	**07 TELEPHONE NUMBER**	**08 DATE**
Michael W. Gorman		Resource Applications, Inc.	(312) 332-2230	10 / 22 / 82 (MONTH DAY YEAR)

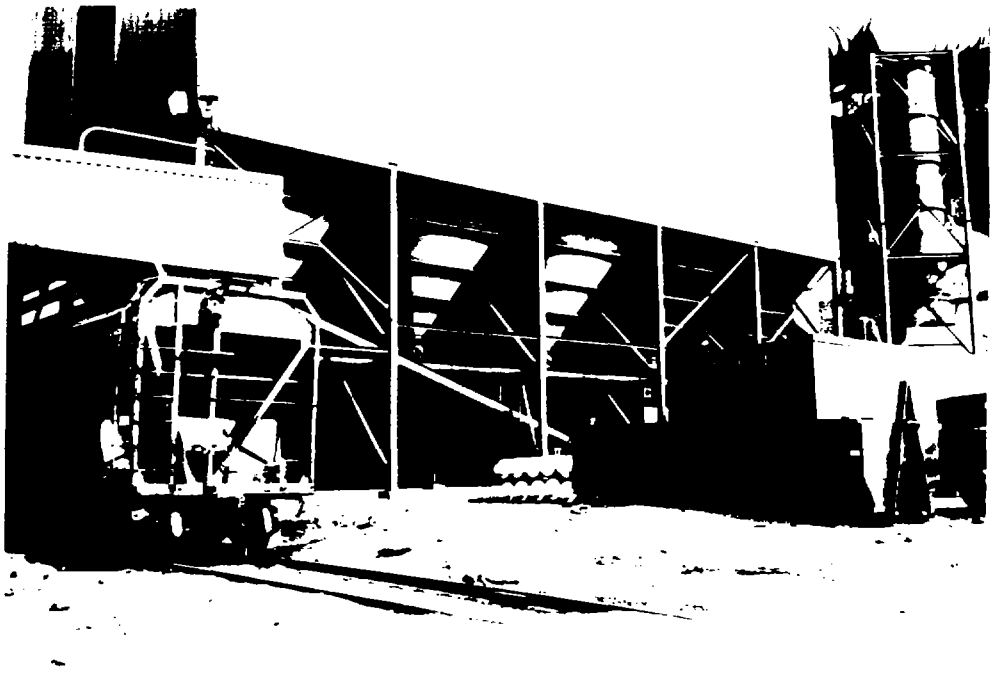
ATTACHMENT B

VISUAL SITE INSPECTION SUMMARY AND PHOTOGRAPHS

VISUAL SITE INSPECTION SUMMARY

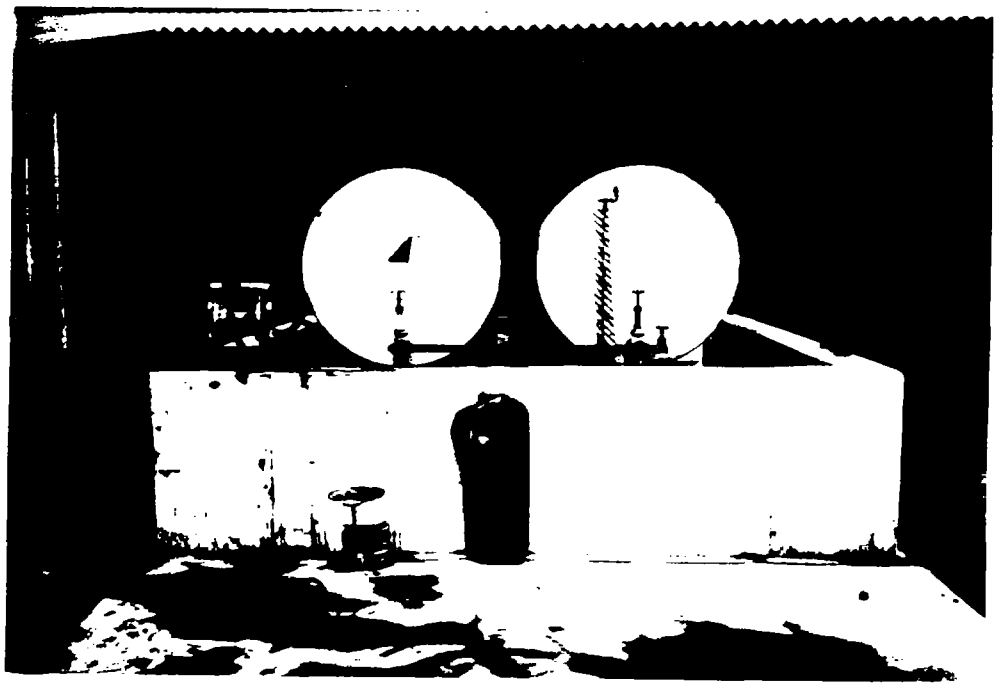
Birmingham Steel Corporation, Illinois Steel Division
972 East 4500 North Road
Bourbonnais, Illinois 60914
ILD 980 996 862

Date:	October 13, 1992
Primary Facility Representative:	Sidney Morgan, Manager, Environmental Systems, Birmingham Steel Corporation (Birmingham Steel)
Representative Telephone No.:	(205) 444-3251
Additional Facility Representatives:	Ray Smith, Plant Engineer, Birmingham Steel John Ohm, General Manager, Birmingham Steel Stephen B. Wright, Assistant Manager, Environmental Systems, Birmingham Steel Phillip Coop, Environmental Specialist, Environmental and Safety Designs, Inc.
Inspection Team:	Michael W. Gorman, Resource Applications, Inc. (RAI) Alan L. Supple, RAI
Photographer:	Alan L. Supple
Weather Conditions:	Sunny, temperature about 60°F
Summary of Activities:	The visual site inspection (VSI) began at 9:00 a.m. with an introductory meeting. The inspection team explained the purpose of the VSI and the agenda for the visit. Facility representatives then discussed the facility's past and current operations, solid wastes generated, and release history. Facility representatives provided the inspection team with copies of requested documents. The VSI tour began at 11:30 p.m. RAI observed facility operations and the following solid waste management units (SWMU): Baghouse Collection System (SWMU 1), Former Storage Cells (SWMU 2), Used Oil Tanks (SWMU 3), Cooling Ponds (SWMU 4), Boneyard Storage Area (SWMU 5), Oil and Solids Separator (SWMU 6), and Arc Furnace (SWMU 7). The tour concluded at 2:00 p.m., after which the inspection team held an exit meeting with facility representatives. The VSI was completed and the inspection team left the facility at 2:30 p.m.



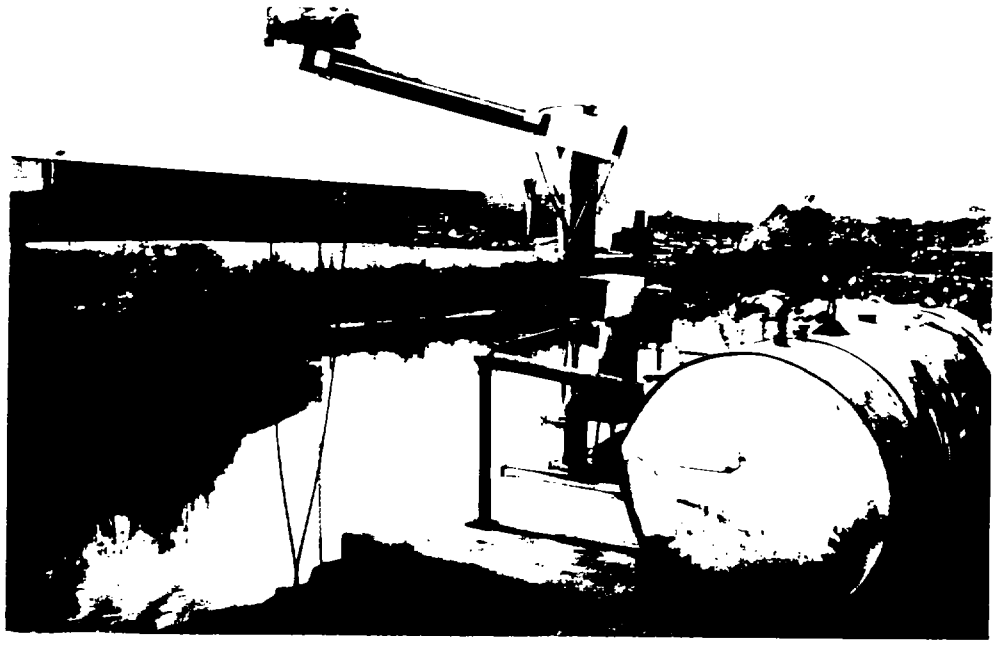
Photograph No. 1 Location: SWMU 1
Orientation: Northeast Date: 10/13/92
Description: The Baghouse Collection System is used to collect arc furnace dust (K061). The vacuuming system is on the right and the rail car used to accumulate dust is on the left.

Photograph No. 2 Location: SWMU 2
Orientation: South Date: 10/13/92
Description: The location of the Former Storage Cells. The mounds on the right contain scrap steel.

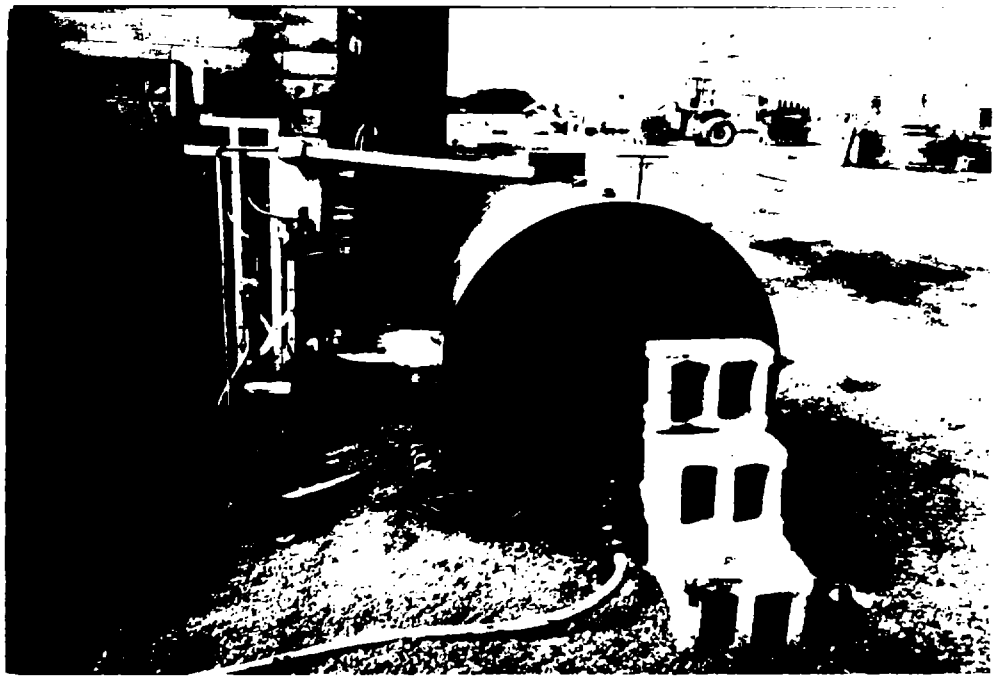


Photograph No. 3 Location: SWMU 3
Orientation: North Date: 10.13.92
Description: The Used Oil Tanks; note dark surface staining of the soil on right of photograph. Discoloration at front is from water.

Photograph No. 4 Location: SWMU 4
Orientation: Southeast Date: 10.13.92
Description: Contact cooling water is cooled in these Cooling Ponds. The first stage is in the foreground, the second stage is in the upper portion of the photograph, and the corner of the third stage is on the left side.



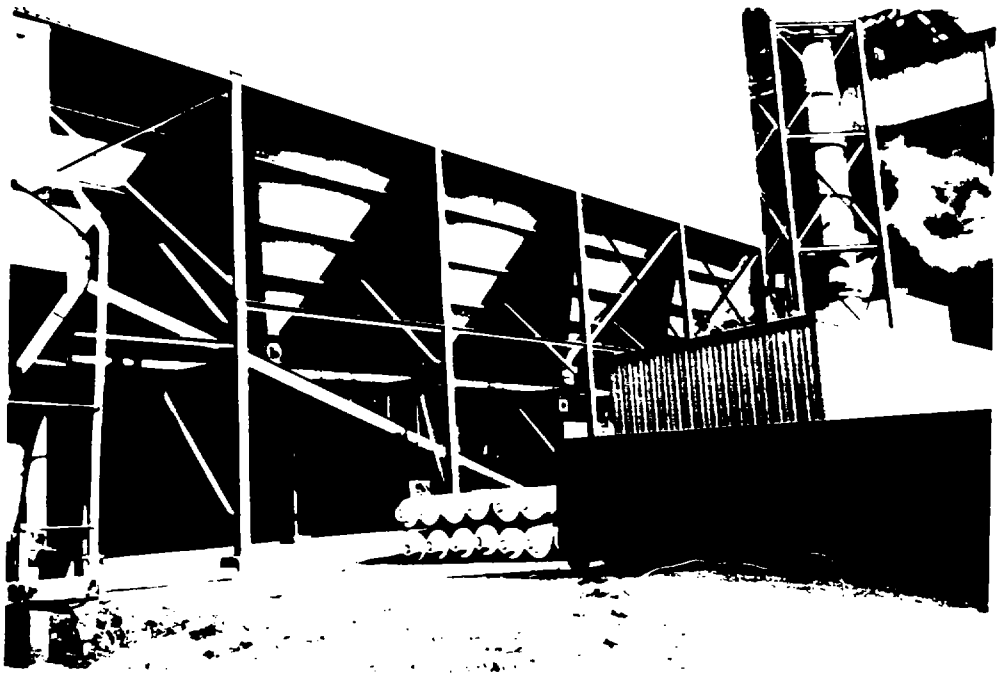
Photograph No. 5 Location: SWMU 4
Orientation: West Date: 10/13/92
Description: A used oil collection tank, part of the Cooling Ponds. This tank is connected to the third stage.



Photograph No. 6 Location: SWMU 4
Orientation: Southwest Date: 10/13/92
Description: The used oil collection tank connected to second stage.

Photograph No. 7 Location: SWMU 5
Orientation: East Date: 10/13/92
Description: The Boneyard Storage Area. The material in the background is slag by-product.

Photograph No. 8 Location: SWMU 6
Orientation: North Date: 10/13/92
Description: The Oil and Solids Separator used to separate oil and solids before water is discharged through a NPDES outfall. The water moves from left to right.



Photograph No. 9 Location: SWMU 7
Orientation: Northeast Date: 10/13/92
Description: The Arc Furnace is located inside the taller building on the right side of the photograph.

ATTACHMENT C

VISUAL SITE INSPECTION FIELD NOTES

10/13/92 Birmingham Steel
60° F Sunny
Steven Wright
John Ohm
Phillip Coop
Ray Smith
Sidney Morgan

Mini steel Mill < 3/4 million Tons
use Scrap steel no Fe ore
Melt in excess of 500 mil Tons
1 - waste K061 - Arc Furnace Dust
Auger ~~feed~~ From Gashouse to
Covered Hopper

1 - Slag - Na Si sold to subcontractor
sold on Commodities market
Melted steel goes to castins dept.
cooled with H_2O
generates steel Billets
Fe Oxide is sold on commodities market

re used in rolling mill
low Alloy Carbon Steel is generated

Haz constituents go to furnace - contain Pb & Cadmium

sell for Const., Fabrication Shop, reinforcing rods, also sell in plant

Birmingham Steel 1984

Birmingham Bolt Pre 1984

1977 - Al. Birm. Bolt Bought land from fed Bankruptcy Court

various owners from 1962 to 1977

Pre 1962 Ag land

Al B.B. 1970
B.B.
B.S.
} Progression of ownership

B.B. merged into B.S. in 1991

Waste oil - generated from maintenance
- waste is drummed & Tanked
- drum is mainly transport device

1,000 gal / 6 months - Both oil streams

2 500 gal Tanks

3 stage lagoon for cooling H_2O

Stage 1 FeO_2 settles out

Stage 2 Collect & skim oil from surface. Underground pipe goes to

Stage 3 - Final cooling & 2nd oil skimmer & H_2O is recirculated

Oil goes to two tanks Oil/H_2O seperator 500-gal & 750 gal tanks

Periodically clean out lagoon to remove scale & sell to brokers - surface piles

Originally 1 cell, H_2O remained too hot so upgraded

NPDES Permit

Storm water

2nd Discharge for emergency

Discharges to unnamed ditch to Saldivus Creek

Safety-Kleen Parts cleaner is source of Spent petroleum Naphtha

Arc Furnace Dust - 9,000 tons/yr
Zinc. Nacional / Monterrey, Mexico
use zinc content + reuse
use Zn N. for ecological reasons
Chem Waste Calumet → Househeard → Zn. Nacional

2 Baghouses - 1 operational
1 Stand by

when B.S. took over facility, over course of clean up 8 9 drums were collected Stored in "Bone Yard" + retrieved from area

X Look at "Bone Yard" Area

N - Ag. land
S - Junk Yard + Comm Business
W - Ag land
E - IL. Central RR. / commercial, warehouse / lumber

Creek

Residence 300 - 400 yds S.E
School - In Bourbonnais S.E.

S.W. - Soldiers Creek "Topo map"

Facility - H_2O From Kankakee
From Kankakee River
All H_2O Taken From City of Kankakee

Permits - NPDES
- FCC Permit
- Air Permit
- S. water
- Process water
-

security - 285 - 270 in production 4 crews
7 days / wk 4 12 HR days
Fenced Perimeter 102 - acres
TV Monitoring 50 cmes - original
Guards - 24 HRS

Releases - 9/25/90
Electric Arc Furnace exploded
Fire Dept. used H_2O which washed
Oil into Storm H_2O discharge
Ditch was excavated as well as on-site
Soils * "Get Info" on
remediation -

Possibly "black soot" in ditch instead of oil

Surface level aerators for domestic sewage only

of 10,923 Tons of arc dust removed during closure 4,000 were actual waste
Fort Transport removed soil & waste to PDC landfill

Areas To see
1) Storage Cells
2) Baghouse & furnace
3) Dumpster
4) Ponds & separator
5) Waste Oil Tanks
6) Discharge Area from explosion
7) "Bone Yard"

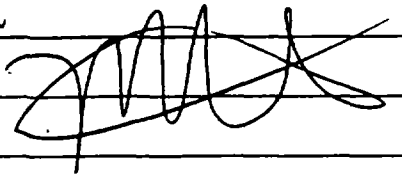
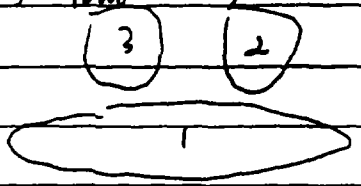


Photo log

1) Waste Cells - Dimensions in C.P.
Started - Pile was here when facility
2) began. Cells were started
in 1979
Ceased 1+yr prior to closure
3) Env for KOCl waste
100 ton Rail Car
200,000 cu ft
4) 10 yd by 30 yd enclosure
Positive pressure bag house
540,000 ACFM Baghouse
Actual cu ft/min
Steel const.
Installed 1988
Prior to 1987 - utilized
current Stand by baghouse
0.1% < moisture

Bone Yard - Grave-Slag base
undefined area.

Cooling Pond - 3



facility started

Pond 1 - 50' x 200'
2 : 50' x 100' 6' deep
3 50' x 100'

Separators 1 500-gal steel Tank
2 750-gal

W.O. Tanks - 500-gal steel
3' High Concrete Berm
15' x 15'

Some Stained gravel at outlet
Superficial

Former Rag house

Storm water outfall OOI & Ditch were
Transformer oil